PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-010427
(43)Date of publication of application : 19.01.1999

(51)Int.Cl. B23C 3/16
G02C 13/00

(21)Application number : 09-172780
(22)Date of filing : 16.06.1997

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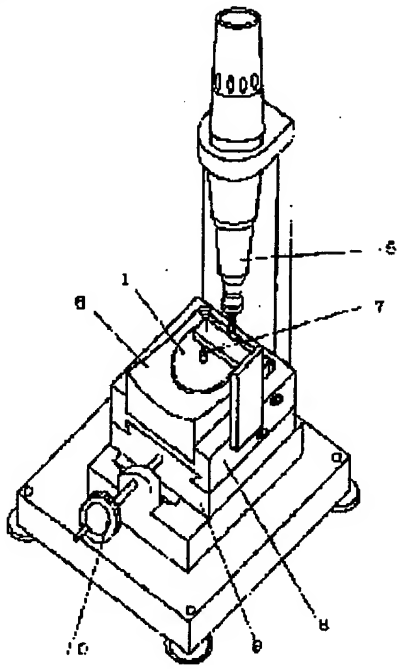
(54) GROOVE CUTTING MACHINE FOR SPECTACLE LENS

(57)Abstract:
PROBLEM TO BE SOLVED: To enable cutting quickly with high dimensional accuracy and without the need of working time by providing a lens pressing member for fixing a lens, and a moving mechanism for relatively moving the lens fixed at the time of cutting and a cutting blade in one direction.
SOLUTION: A lens 1 is placed on a lens R pedestal 6, and a lens contact is brought into one-point contact with the lens and fixed by a lens pressing member 7. The lens R pedestal 6 is formed by a member having suitable elasticity, which has a curved surface not to damage the lens and accurately hold the lens. A support table 8 where the lens R pedestal 6 is fixed is further inserted in a groove and installed on a horizontal moving pedestal 9, and moved by a horizontal moving handle 10 to an end mill 5 for cutting. As a cutting tool, the end mill 5 cuts the surface of the lens 1 to form a groove.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

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CLAIMS

[Claim(s)]
[Claim 1] In the cutting machine which establishes the slot for attachment of a member in a spectacle lens frame attachment of rim loess spectacles — (1) Per [which positions the lens laid on the lens R plinth which has the curved surface doubled with the curvature of a spectacle lens, and (2) spectacle-lens plinth] lens, (3) Slot cutting machine for spectacle lenses characterized by having the move mechanism which the lens presser-foot member which fixes a spectacle lens, the spectacle lens by which fixation was carried out [aforementioned] at the time of (4) cutting, and the cutter for cutting move to ** on the other hand relatively.
[Claim 2] The aforementioned lens R plinth is a slot cutting machine for spectacle lenses according to claim 1 characterized by being supported so that an inclination may become free.
[Claim 3] The lens presser-foot member which presses down an aforementioned lens and lens R plinth is a cutting machine with the spectacle lens according to claim 1 only for slots characterized by inclining and preparing perpendicularly to a drilling member.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the cutting machine only for slots formed in a spectacle lens in anchoring of frame fittings in a rim loess spectacles frame.

[0002]
[Description of the Prior Art] In the conventional rim loess spectacles frame, the stoma is beforehand opened in the lens, and YOROI which is frame fittings and a bridge for fixation with the soldered lens receptacle (lens grip) at the lens, it let the screw pass for fixation in this stoma, and fixation with a lens and a frame part article was performed.
[0003] In the rim loess spectacles frame of such a conventional type, the lens receptacle (lens grip) according to the lens curve needed to be manufactured, and the processing and design had taken time and cost. since the stop of a lens receptacle (lens grip) and a lens was used as one screw stop, operating frequency increases — it is alike and a companion and a screw surely tend to loosen, it carries out with [of a lens] backlash by being alike occasionally, and it arises Moreover, in order to prepare a stoma in a lens, the size of the part had to be taken into consideration because need precise punching technology and an intensity top also prepares a stoma.
[0004] In order to solve such a problem, the fixed attachment component was fitted into the slot by losing the lens receptacle (lens grip) currently used in order for these people to lose the problem **** composition which had prepared the stoma in the lens and to carry out a screw stop to a stoma, and establishing the slot corresponding to a fixed attachment component in a lens edge, and the spectacles of structure attached in a lens were proposed. Drawing 1 is drawing showing the example. a lens 1 — a slot 2 — preparing — frame attachment — a member 3 is fixed with a screw 4
[0005]
[Problem(s) to be Solved by the Invention] Although the slot of the lens 1 as shown in drawing 1 was formed using the general-purpose cutting machine tool, the configurations of a processing object could not differ variously, or since the quality of the material of a plastic lens was soft, it could not fix by the strong force, but it had required many the errors and floor to floor time of a size. Then, dispersion has appeared in the result of a product and the problem had come out on quality.
[0006] For example, when the curvature of a spectacle lens changed like a superimposed focal spot, in order to have equalized and prepared the slot of cutting of a lens, the installation had taken time to that it must be right-angled etc. to the end mill.
[0007] Without needing special precise technology and special precise processing for the purpose of solving the above-mentioned technical problem, this invention can do cutting quickly easily and also aims floor to floor time at obtaining the machine only for cutting of the slot on a spectacle lens where it is few and precision is high. Moreover, it is obtaining the machine only for cutting of the slot of a compact spectacle lens easily portable also by ******.
[0008]

[Means for Solving the Problem] It considers as slot cutting equipment equipped with the move mechanism, on the other hand, carry out the relative movement of per [which positions the lens laid on the lens R plinth which has the curved surface doubled with the curvature of a lens in the machine only for slot cutting of the spectacle lens of this invention in order to solve the above-mentioned technical problem, and the lens plinth] lens, the lens presser-foot member which fixes a lens, the lens by which fixation was carried out [aforementioned] at the time of cutting, and the cutter for cutting to **.

[0009]

[Embodiments of the Invention] The exclusive cutting machine of the slot of the spectacle lens which aims at attachment of frame fittings to the glasses of this invention is explained with an example. Drawing 2 is the perspective diagram of an example of this invention equipment. a lens 1 is placed on the lens R plinth 6 -- having -- a lens presser foot -- a member 7 is fixed The lens R plinth 6 consists of members which have the suitable elasticity which has a curved surface, and cannot damage a lens and can hold a lens correctly.

[0010] Insertion wearing is further carried out by the slot at the horizontal displacement plinth 9, and the susceptor 8 which fixes a lens R plinth is moved in order to cut to an end mill 5 by the horizontal displacement handle 10. As a cutting implement, an end mill 5 cuts the front face of a lens 1, and forms a slot 2.

[0011] Drawing 3 is explanatory drawing showing the situation of cutting by the equipment of this invention. A lens 1 is laid on the lens R plinth 6. The curvature and lens 1 of the lens R plinth 6 use the thing which is [simultaneously] in agreement and in agreement. A lens 1 is positioned by per [12] lens and determines the slitting position of a cutting slot. The curvature of the lens R plinth 6 is exchangeable if needed according to the curvature of a lens 1.

[0012] Drawing 4 is explanatory drawing which looked at the situation of cutting of the lens placed on the lens R plinth from the top. There is a retaining wall 11 of a susceptor 8 in the both sides of the lens R plinth 6, and the lens R plinth 6 is supported. It is possible to attach an accessory etc. in this lens R plinth 6. The lens R plinth 6 slides a susceptor 8, and it can equip with it, and is fixed with the stop screw which is not illustrated. The field of a lens 1 and the lens R plinth 6 counters almost right-angled to an end mill 5. In this example, per [12] lens touches the lens by one point.

[0013] Moreover, if it is made for the susceptor 8 which supports the lens R plinth 6 to incline if needed as shown in drawing 5 , it is also possible to tune the degree of cutting angle of a groove surface finely. As a mechanism of an inclination, the mechanism of regulation with the screw which supports other bases also in combination with a gearing is sufficient. On the basis of the straight line 13 of a mark etc., a lens 1 puts a lens on the right position, and goes into the field of the lens R plinth 6 at cutting preparation.

[0014] drawing 6 -- a lens presser foot -- the detail of a member 7 is shown The axis end serves as a swivel joint and the inside of the press section 14 can press down a lens 1 now effectively at any angles. Moreover, since the elastic member 15 is covered by the point of the press section 14, to a lens 1, there is an effect of a desirable presser foot and a lens is not damaged to it. Of course, the half of the press section 14 can also be altogether formed as an elastic member, without covering.

[0015] The mechanism of a lens presser foot rotates a handle 16, is made to ** with a screw to a supporter 17 approximately, and presses down or loosens the elastic member 15 which consists of rubber and the equivalent member of the press section 14 to a lens 1. Since the axis end serves as a swivel joint, a lens 1 can be pressed down reasonable at any angles.

[0016] In this example, although the handle 16 inclines to an end mill 5 perpendicularly, since it works so that a lens 1 may be pushed by per [12] lens when binding tight, it will become desirable in this inclination direction, for positioning.

[0017] As a lens presser-foot mechanism, although various mechanisms are established this outside, as shown in drawing 7 , it can carry out also according to the form of the shaft of support. In this example, the press section 14 is being fixed through the shaft 18, and the shaft is supported pivotably free [rotation] by the axial supporter 19. If a handle 20 is rotated below, the press section 14 currently fixed will be pressed to a lens 1.

[0018] As shown in drawing 8 , the block 21 which can rotate freely on a shaft is formed, and the inside of a cam groove 22 is supported and it moves. A cam groove 22 is formed in suitable **** prepared in the outside of a lens 1. A handle 20 is moved below, if a handle 20 is pulled to the method of **** after pressing down a lens 1 and fixing, the spring 24 in a shaft tube 23 will be resisted, and a member 26 moves to the method of the right stop mincing on a periphery the gearing 25 fixed to the shaft tube 23.
[0019] Engagement on a gearing 25 and the gearing 27 minced by the periphery of a cam groove 22 separates, and a handle 20 can be freely moved by this state. If it moves and a handle 20 is returned to a left in the position until it presses down a lens 1 below, gearings 25 and 27 are engaged again, it will press down, and a member 7 will be fixed and preparation of cutting will be completed.
[0020] Outside this, although various things can be considered as a presser-foot member, the mechanism pressed down in a cylinder using pneumatic pressure is also considered. Also in this case, by preparing the press section using the swivel joint, a load is not applied to a lens too heavily. Of course, the composition to which it is made to move with the method of an electromagnet is also considered by the electromagnetic formula.
[0021] Thus, the lens fixed to the above-mentioned position by the presser-foot member moves a base, and digs a slot with an end mill. Of course, you may be the composition that an end mill 5 moves conversely.
[0022] Per lens was received, the height of the machine only for these cutting was stopped by about 27-30cm, ** was also inserted simply and equipped with the lens R plinth 6, and since it was the simple composition of pressing down by the presser-foot member, miniaturization was attained very much.
[0023]
[Effect of the Invention] this invention — frame attachment of a lens — as an exclusive cutting machine of the slot for members, the precision of a size is high and ** can also offer many ****** and things which can be cut quickly for floor to floor time Therefore, the exclusive cutting machine which averages about a result and quality of a product and can maintain a productive high level was obtained.
[0024] Although it separated without the center line and lens frame part article of glasses being in agreement especially, it became inaccurate and the problem was brought to an optical precision of original of glasses, it canceled with this exclusive cutting machine.
[0025] Moreover, although it had to be right-angled and difficulty and time were needed for the installation to the end mill especially when the curvature of a lens changed in order to have equalized and prepared the slot of cutting of a lens for example, the point could also be performed quickly.
[0026] since the stop of frame fittings and a spectacle lens was used as one screw stop, operating frequency increases — alike — a companion and the above — by setup of an inaccurate slot, this screw surely tends to loosen, it carries out with [of a spectacle lens] backlash by being alike occasionally, and it sometimes arises
[0027] Moreover, the conventional cutting took the special precision manufacturing technology and the skillful engineer in the process of processing the outside which needs many part processings, since it became what has a high precision easy and that it was the structure which time requires and was high cost also in cost, productivity could be raised and reduction in cost has been realized. Since it was miniaturizable, structure was able to obtain the machine only for cutting easily portable also by ******.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is a perspective diagram explaining a relation with the frame fittings attached in the slot of the spectacle lens formed by the machine only for cutting of the slot on this invention.
[Drawing 2] It is the perspective diagram of an example of the machine only for cutting of the slot of the spectacle lens of this invention.
[Drawing 3] It is explanatory drawing of cutting of the spectacle lens by the equipment of this invention.
[Drawing 4] It is explanatory drawing which looked at the situation of cutting of the lens by the equipment of this invention from the top.
[Drawing 5] It is explanatory drawing of fine tuning of the base in the equipment of this invention.

[Drawing 6] the presser foot in the equipment of this invention — it is explanatory drawing of one example of a member
[Drawing 7] the presser foot in the equipment of this invention — it is explanatory drawing of other examples of a member
[Drawing 8] the presser foot in the equipment of this invention — it is explanatory drawing of the move mechanism of a member
[Description of Notations]
1 Lens
2 Slot
3 Frame Attachment — Member
4 Screw
5 End Mill
6 Lens R Plinth
7 Press Down and it is Member.
8 Susceptor
9 Horizontal Displacement Plinth
10 Horizontal Displacement Handle
11 Retaining Wall
12 Per Lens
13 Straight Line
14 Press Section
15 Elastic Member
16 Handle
17 Supporter
18 Shaft
19 Axial Supporter
20 Handle
21 Block
22 Cam Groove

23 Shaft Tube
24 Spring
25 Gearing
26 Stop and it is Member.
27 Gearing

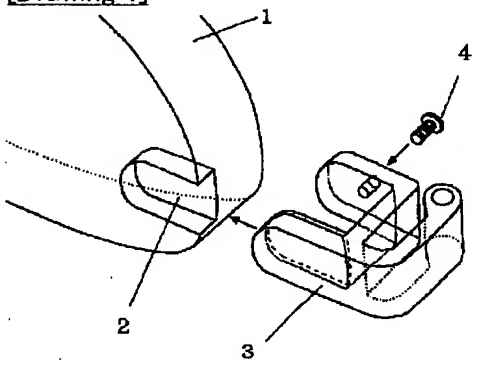
[Translation done.]

* NOTICES *

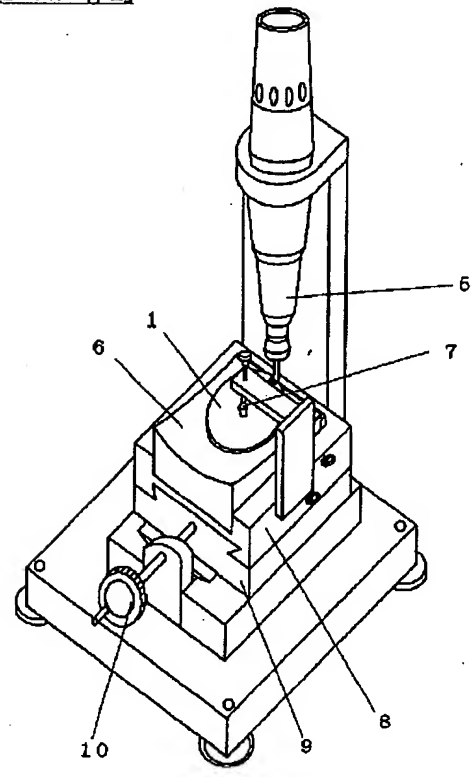
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

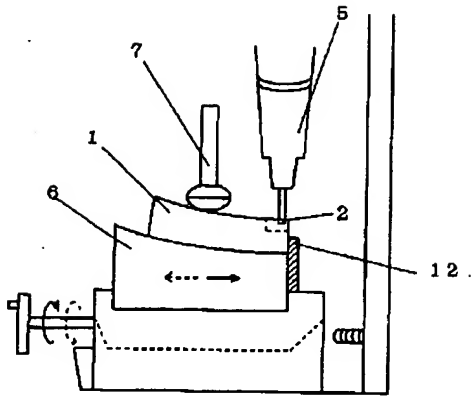
[Drawing 1]



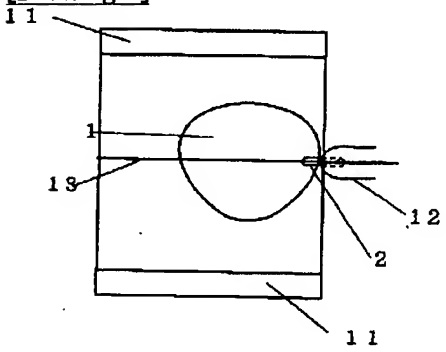
[Drawing 2]



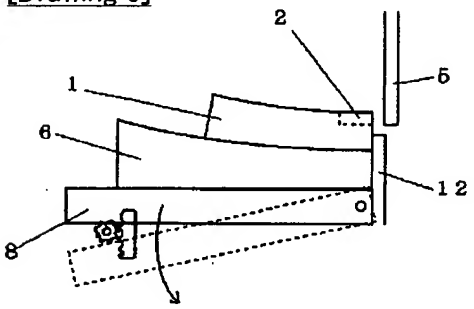
[Drawing 3]



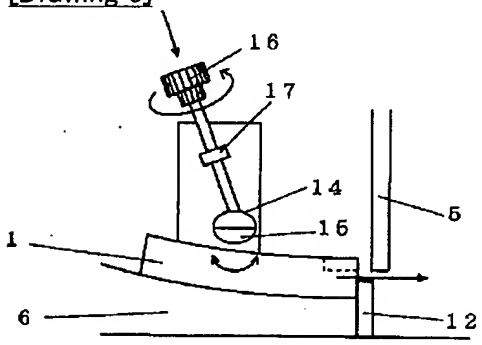
[Drawing 4]



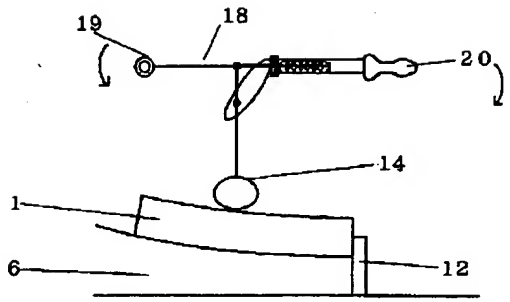
[Drawing 5]



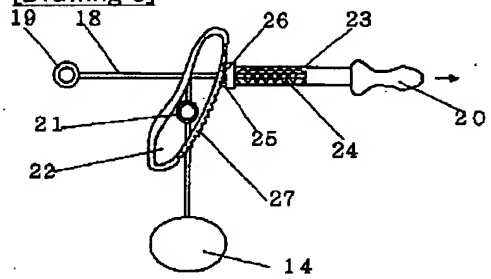
[Drawing 6]



[Drawing 7]



[Drawing 8]



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